

Management Plan

Pleasant Valley Conservancy for LIP grant

Pleasant Valley Conservancy State Natural Area contains 144-acres of prairie, oak savanna, wetlands, woodlands, and planted prairies. A wide variety of interesting plant species is present, including some that are endangered, threatened, or of special concern. The focus in this plan is on at-risk species that thrive in oak savanna habitats. These include purple milkweed (*Asclepias purpurascens*), upland boneset (*Eupatorium sessilifolium*), giant yellow hyssop (*Agastache nepetoides*), and cream gentian (*Gentiana alba*).

When restoration began in 1997, the oak savanna areas at Pleasant Valley Conservancy were heavily degraded. Although outstanding open-grown oaks were present, they were being crowded out by invasive shrubs, primarily buckthorn and honeysuckle, but also by prickly ash, brambles, and gray dogwood, and by invasive trees such as walnut, elm, and cherry. Removing these invasive woody plants, followed by controlled burns and overseeding, led to a resurgence of native forbs, including the species listed above. However, an extensive seed bank of invasive shrubs remained, so that within a few years renewed growth of buckthorn, honeysuckle, and brambles occurred. Burns alone can not control these invaders; they are top-killed but the root systems are not affected. The resurgence of these species eventually affected the success of controlled burns, because they shaded out the forbs and grasses that would carry a fire. Soon, large patches of buckthorn and honeysuckle had returned. Even though these woody invaders were much smaller in size than those removed originally, they were still extensive enough so that they were affecting the growth of the desired plants.

Research in marked plots showed several ways of finally eradicating these invading shrubs: 1) Foliar spray with glyphosate or triclopyr; especially in the late fall after the native vegetation has died back for the year (the exotic shrubs retain their leaves for a long time in the fall); 2) after a spring burn do foliar sprays with triclopyr of shrub resprouts; 3) in the winter, cut the shrubs and treat the cut stems with herbicide. Technique #3 works primarily for honeysuckle and gray dogwood, but less well for buckthorn. Technique #1 is very effective, but there is only a restricted period of time in late fall when this can be done. (Eventually, the buckthorn and honeysuckle lose their leaves, so that foliar spraying cannot be done.) Technique #2 works well, but depends upon successful spring burns. Also, not all resprouts appear at the same time, so it is essential to return to the site twice (preferably three times) after the burns, in order to eliminate all new growth.

The color coded map shows the distribution of oak savanna at Pleasant Valley Conservancy. The areas to be restored by the 2008 LIP grant are Units 11A, 11B, and 11C, and Units 13B and 13D.. This is approximately 10 acres (as measured by GPS).

Schedule:

Technique #3: Areas that contain predominantly gray dogwood and honeysuckle will be restored in the winter. These woody plants are cut with a brush cutter (using a sharp saw blade), and the cut stems immediately treated with 50% Roundup containing a red dye to monitor coverage.

Technique #2: About three weeks after spring burns, visit these areas and spray all resprouts of invading shrubs with triclopyr, using a backpack sprayer. The concentration to be used is 3% Garlon 3A, which is a bit higher than the label, but chosen to ensure that all sprayed patches are killed. Garlon is used because it does not affect grasses, and should thus encourage the growth of prairie and savanna grasses that will help carry future fires. To ensure complete coverage of the area, swaths about 15 feet wide are marked with flagging tape, and every target

plant in each swath sprayed. Working down one swath and up the next will ensure that coverage is complete. A blue dye is added to the spray to ensure that all leaves are sprayed. The area is revisited three weeks later, and again six weeks later. It is anticipated that three visits should ensure that all new growth has been sprayed.

Technique #1: In early November, return to all areas that have been treated and monitor for buckthorn or honeysuckle plants that have grown during the year. These would be plants that were missed in the winter and spring work. All of these living plants would be sprayed with foliar glyphosate, using a relatively high concentration (4-6% Roundup) to be sure that all plants are killed. Roundup is used instead of Garlon because it has no soil residual, and there should be no carryover into next year's growth.

Depending on when funding begins, the above schedule can be adjusted to fit the seasonal requirements.

Monitoring

The area to be restored will be marked so that the effectiveness of the work can be evaluated. In the following growing season, the effectiveness of the work will be evaluated by qualitative comparisons to nearby unrestored areas. Observations will be made in mid-summer and again in early November. The latter date is ideal because most of the native vegetation will have died back but the target species retain their leaves and are readily visible.

Plan prepared by Thomas D. Brock, December 2007

